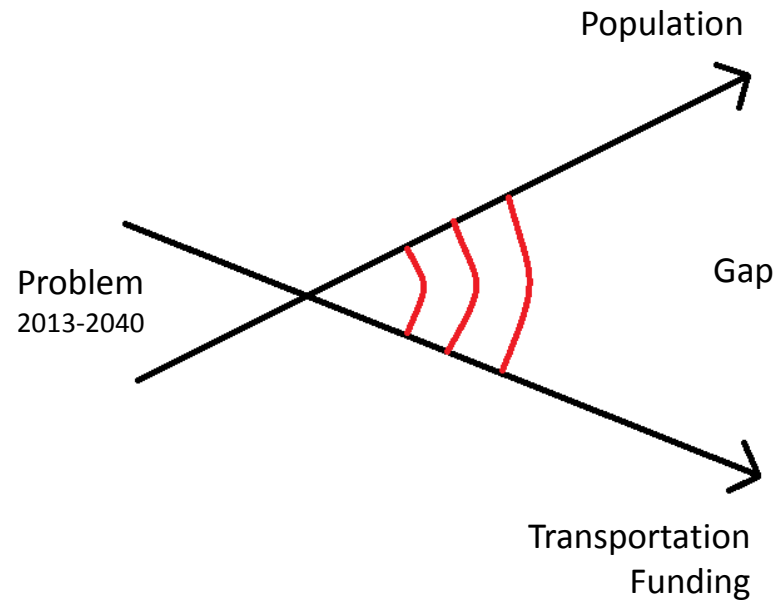


# Revenue Enhancement Options Study



Prepared for North Carolina Department of Transportation by  
Institute for Transportation Research and Education at North  
Carolina State University in collaboration with Larry Goode, PhD

# Purpose

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- ▶ “To investigate a menu of options for revenue enhancement in North Carolina.”

(RP 2013-19)

- ▶ 110+ resources

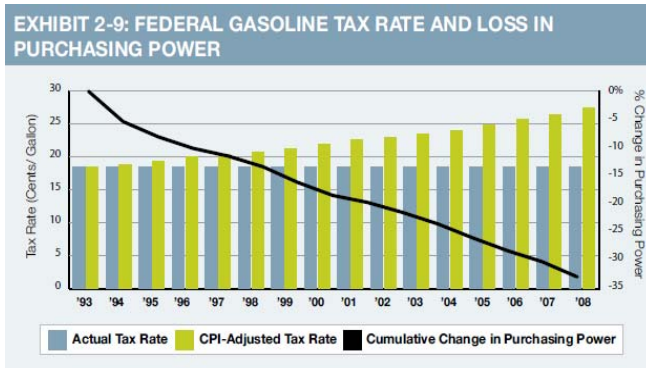
- ▶ Quick turnaround study

# Organization

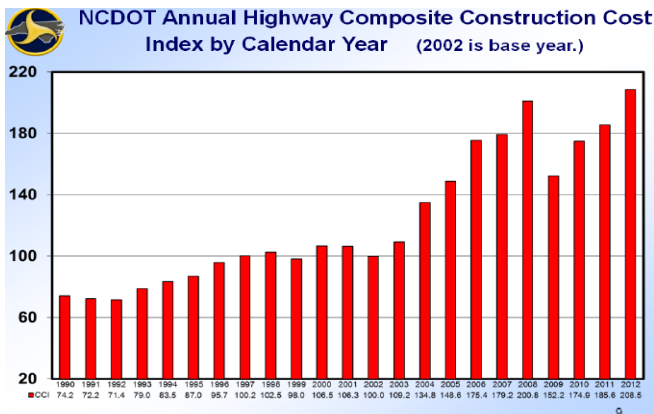
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- ▶ Do we have a funding crisis?
  - ▶ National, North Carolina funding levels, economic impact
- ▶ Do we need a paradigm shift?
  - ▶ Pay-by-the-gallon vs. pay-by-the-mile
- ▶ What are our best options?
  - ▶ Immediate solutions, long-term solutions
- ▶ Quick turnaround study?
  - ▶ Selecting most-appropriate funding options

# Do we have a national funding crisis?



Source: National Surface Transportation Infrastructure Commission. "Paying Our Way."

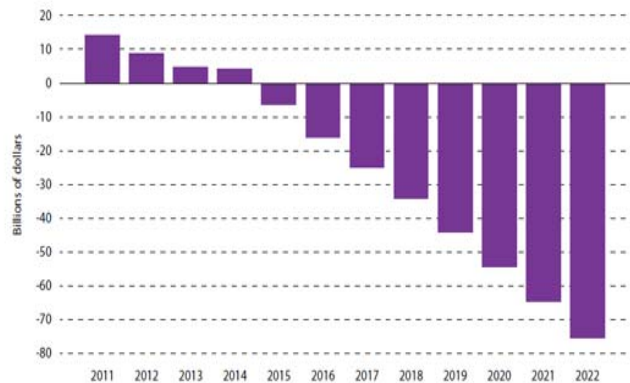


Source: NCDOT. "Annual Highway Composite Construction Costs."

- ▶ Gas revenues down
- ▶ Fuel economy gains = lower tax receipts
- ▶ Construction costs up
- ▶ Trucks exerting heavy road damage
- ▶ Other factors:
  - ▶ Congestion up
  - ▶ Differed maintenance on roads & bridges
  - ▶ Political stalemate in Congress

# What's the big picture?

FIGURE 9-1.  
Highway Trust Fund Projections



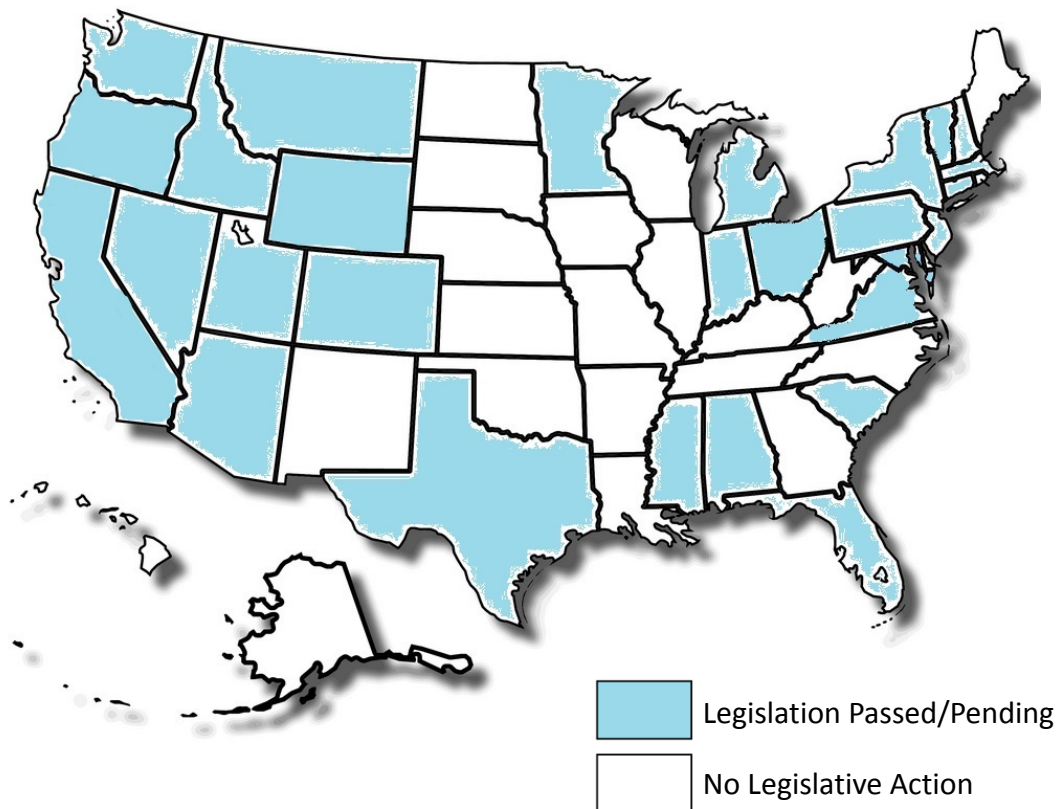
Source: CBO 2012.

Highway Trust Fund projected to be insolvent by 2015

- ▶ Current expenditure at disinvestment level
  - ▶ 2010 transportation system deficiencies cost households and businesses \$130 billion
- ▶ If current funding levels continue:
  - ▶ Loss of wages of \$252 billion by 2040
  - ▶ Households will pay an extra \$54 billion by 2040
- ▶ Current funding levels will likely decline

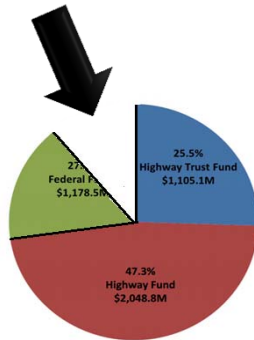
# What are other states doing?

- ▶ NCDOT's responsibility is among the biggest in the country
  - ▶ 2<sup>nd</sup> only to Texas in terms of state maintained mileage

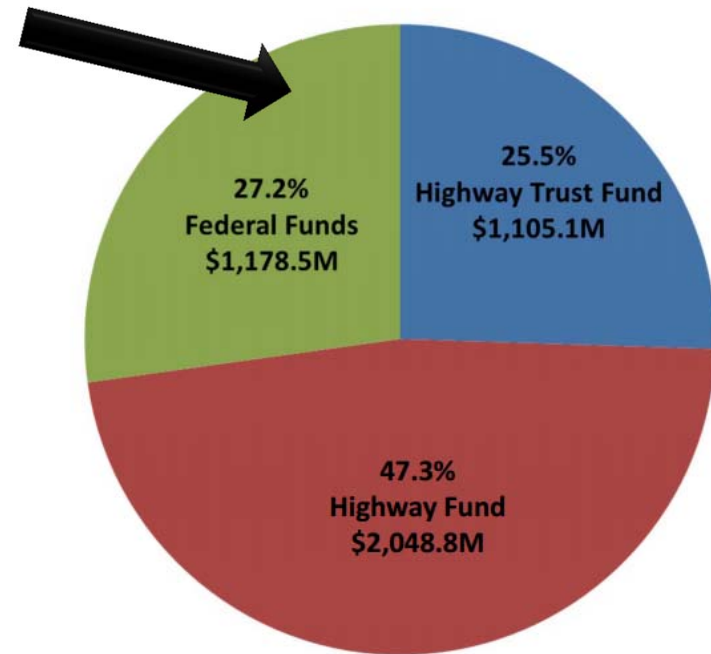


# How does the federal funding crisis impact us?

- ▶ NCDOT predicts a 35% cut in federal funds through the 2040 plan period



- ▶ Federal cuts may be larger than initially predicted
- ▶ Budget shortfall: \$86.3 billion to \$148.2 billion



¼ of NCDOT's budget funded by federal government

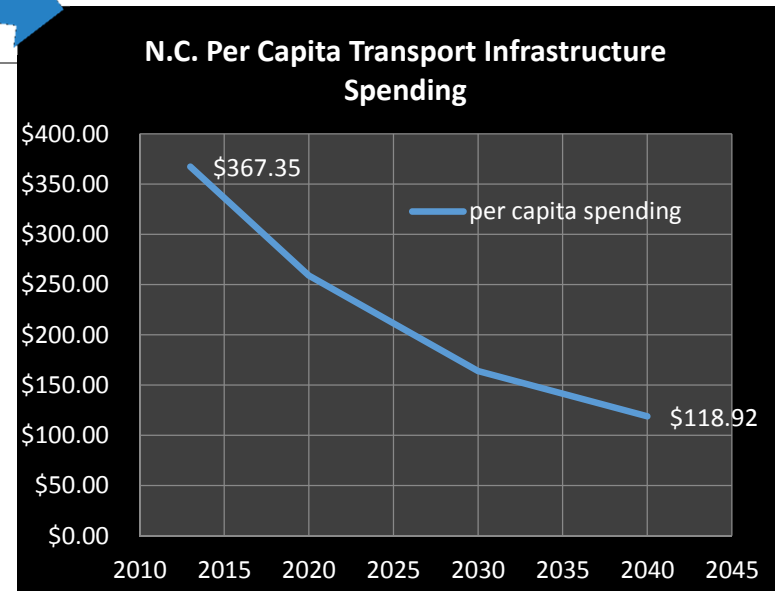
# How does NC fit into the national crisis?

## ▶ We face similar issues to federal gov't

- ▶ Declining state gas tax revenues (we're indexed, but capped)
- ▶ Fuel efficiency impacts
- ▶ Increasing construction costs
- ▶ Congestion costs
- ▶ Differed maintenance

## ▶ But we also have our own challenges

- ▶ **Unprecedented population growth** – adding the population of South Carolina to our ranks by 2040
- ▶ Truck traffic is particularly heavy





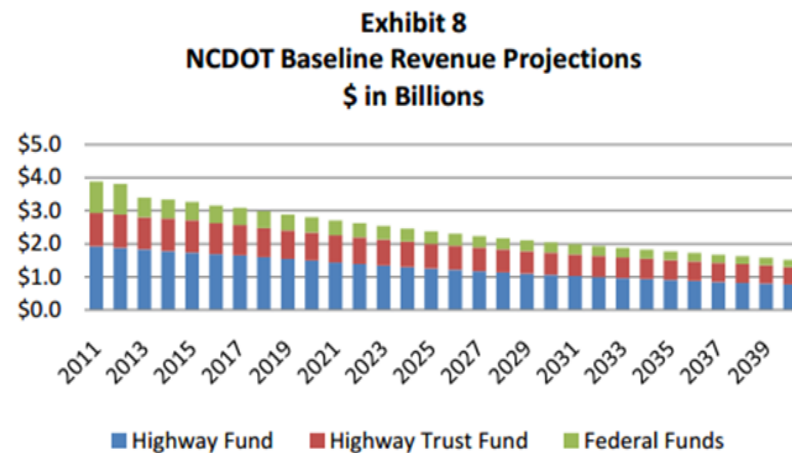
# Low investment strains NC economy

## ► Infrastructure Deterioration

- C- to D rating

## ► Statewide economic loss

- I-95 corridor study captures only one region



### I-95 Corridor Study

By 2050, investment as usual along NC's I-95 corridor will lead to the following:

- Loss in Gross Regional Product:
  - \$41 billion in I-95 corridor
  - \$7 billion in eastern counties
  - \$30 billion rest of the state
- Loss in wages:
  - \$44 billion in I-95 corridor
  - \$7 billion in eastern counties
  - \$22 billion in rest of the state
- Loss of 16,530 jobs throughout NC

# Do we need a paradigm shift?

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User pays principle now broken after nearly a century

- Gas tax loss of purchasing power
- Improvements in fuel economies/alternative vehicles
- Rise in construction costs



A utility fee framework may make the most sense

- Similar to municipal water and sewer system, users pay for what they use
- Promotes maximum efficiency – people will drive the amount they are willing to pay for, but no more

Naturally lends itself to mileage-based user fees

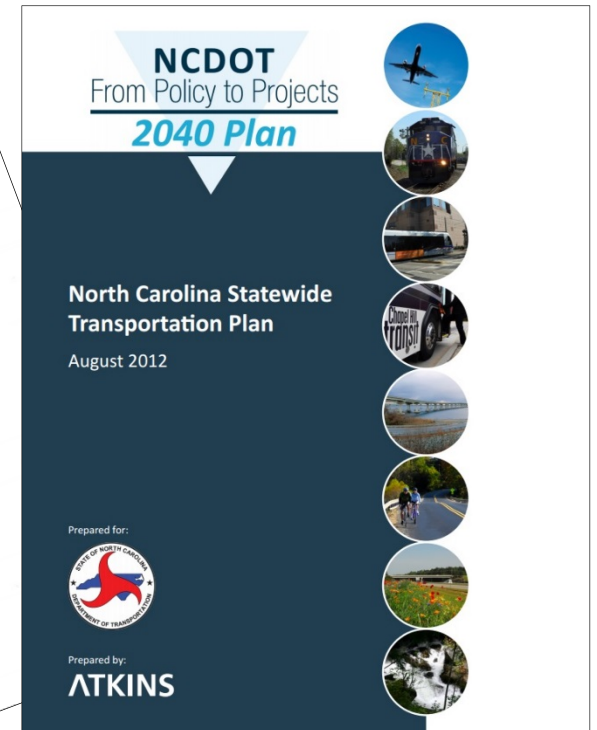
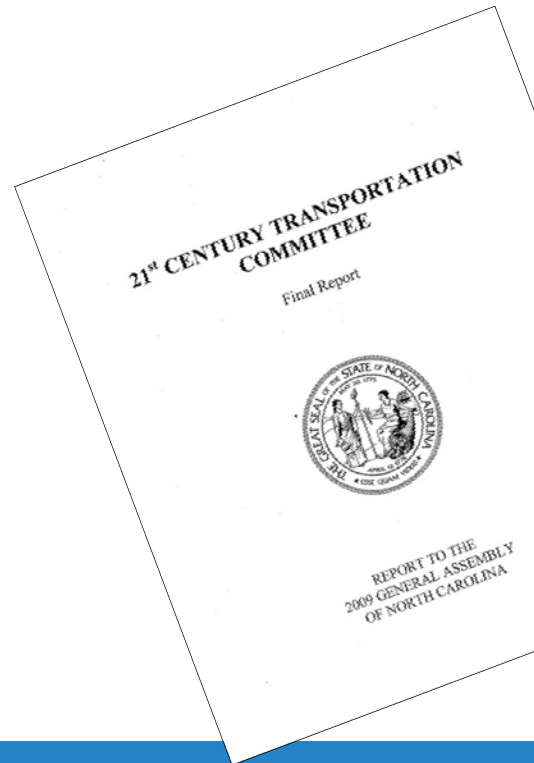
- Users pay by the mile instead of by the gallon

# Previous Studies

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## ► 21<sup>st</sup> Century Report

## ► 2040 Plan



# What are our best options?

Short term options (2014-2020) required to raise over \$1 billion annually

Mechanism	Revenue Potential
Remove the motor fuels tax cap	\$35 million
Discontinue General Fund transfers from Highway Fund (no user impact)	\$255 million
Liability fee: 20 percent surcharge (\$6.67/user per month)	\$170 million
Highway Use Tax: 1 percent increase (3-4%; 4.16/user per month)	\$170 million
Transfer of short term lease rentals from General Fund to Highway Fund (no user impact)	\$50 million
Mileage-Based User Fee on passenger vehicles: (0.5 cents/mile; \$6.25/user per month)	\$495 million
Mileage-Based User Fee on IRP commercial vehicles: (1 cent/mile)	\$5 million

# What are our best options? (continued)

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- ▶ Next, we need long-term funding security
  - ▶ Mileage-based user fees
  - ▶ Congestion Pricing:
    - Managed Lanes
    - Cordon Pricing
  - ▶ General Pricing (Tolling)

# Mileage-based user fees (MBUFs)

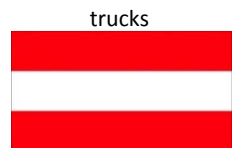
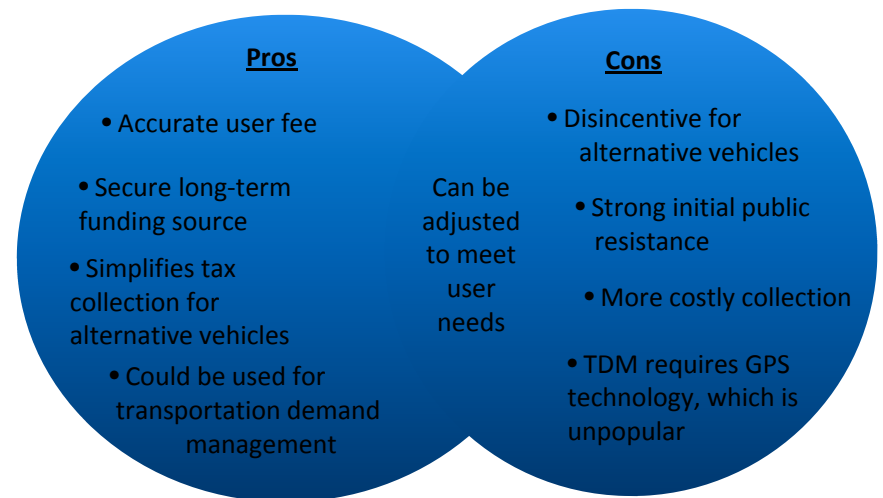
## ▶ Per-mile fee

- ▶ Pay by mile instead of by gallon (directly upholds the user pays principle)

## ▶ Covers costs to maintain and build roads

## ▶ Different fee schedules can be applied for fairness

- ▶ Heavy vehicles impose more damage on roads = slightly higher fees



trucks

Austria



trucks

Switzerland



cars & trucks

New Zealand



trucks

Slovakia



trucks

Czech Republic



trucks

Germany



cars & trucks

United States

# Mileage-based user fees (continued)

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- ▶ **Successful MBUF programs**

- ▶ Trucks: Germany - Heavy Goods Vehicle Tolling
- ▶ Passenger Vehicles: Oregon – Road Usage Charge Program @ 5,000 vehicles

- ▶ **First step in North Carolina is a pilot program**

- ▶ Univ. of Iowa Public Policy Center – huge swings in public opinion
- ▶ Infrastructure already exists for a basic MBUF program
- ▶ NC requires all vehicles to pass an annual inspection

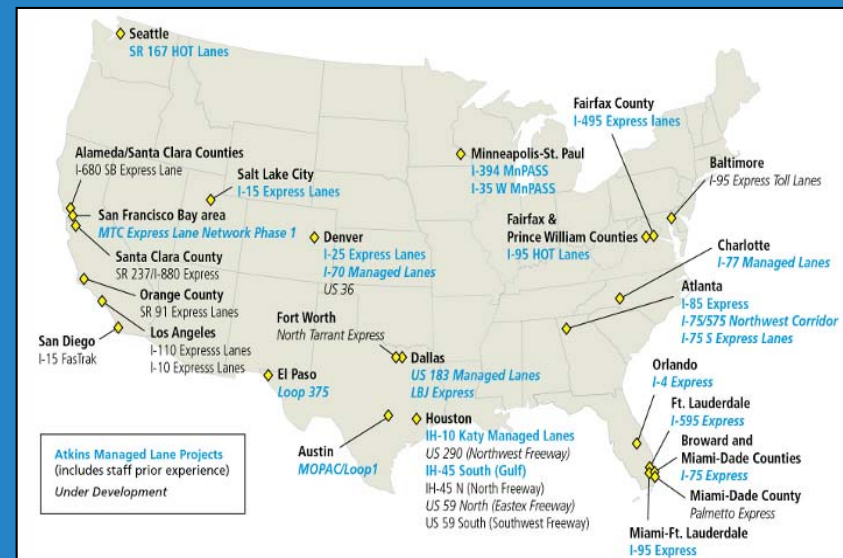
- ▶ **North Carolina Pilot Program**

- ▶ 0.5 cents/mile for cars = \$495 million in annual revenue
- ▶ 1 cent/mile for IRP commercial vehicles = \$5 million in annual revenue

# Managed Lanes

- ▶ Primary objective to reduce congestion, but also generate revenue
- ▶ Certain drivers qualify, others pay a fee to enter decongested lanes
- ▶ Creates lanes that are always moving at a free-flow
- ▶ Fees help maintain and improve the roadway

## Where are managed lanes being implemented?





# Managed Lanes (continued)

- ▶ Congestion has been climbing in North Carolina
  - ▶ 57% of urban interstate miles, 47% of rural interstate miles

## Peak congestion: 1990-2011

- Charlotte, Raleigh-Durham, Greensboro, Winston-Salem, Asheville, Fayetteville and Wilmington will grow en masse from 69 to 74 percent of state population by 2040
- Facility underway in Charlotte with PPP procurement
- Could net \$2.2 million in annual revenue

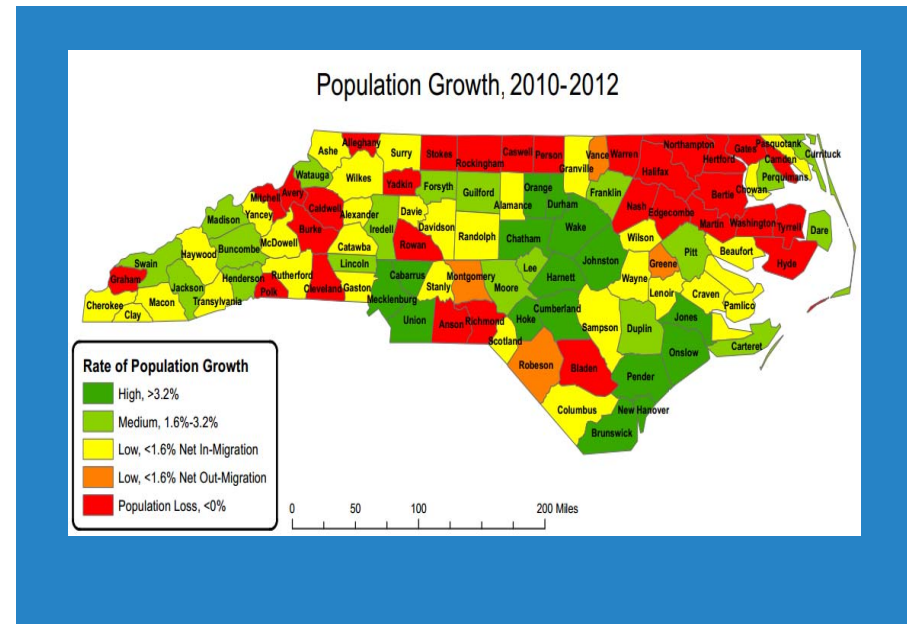
Charlotte: 39-59%

Raleigh-Durham: 26-50%

Greensboro: 7-18%

# Cordon Pricing

- ▶ Primary goal also to reduce congestion, but generates revenue too
  - Singapore \$237 million; Stockholm \$116 million, London \$54 million
- ▶ Drivers pay a fee to enter a congested cordon
- ▶ Leads to traffic reductions, improvements in air quality, and other benefits in cordon
- ▶ Initial resistance to Cordon Pricing
  - Can be overcome with a pilot program



Sweden



United Kingdom



Czech Republic



Latvia



Malta



Italy



Singapore

# General Pricing (Tolling)



- ▶ 277 state and local roads, bridges and tunnels in 32 states
- ▶ 10 percent of total federal, state, and local highway revenue
- ▶ North Carolina uses or has proposed six tolling facilities
  - ▶ Triangle Expressway (RTP) and 540 Southwest
  - ▶ Complete 540 Triangle Expressway Southeast Extension (RTP)
  - ▶ Mid-Currituck Bridge (Currituck)
  - ▶ Monroe Bypass (Mecklenburg County)
  - ▶ Garden Parkway (Gaston County)
  - ▶ Cape Fear Crossing (Brunswick and New Hanover Counties)
- ▶ North Carolina Turnpike Authority limited to 9 toll projects
  - ▶ Will restrict North Carolina in the future

# What are other states doing?

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- ▶ Within last two years, > 30 revenue options adopted or reinstated
- ▶ Funding options most commonly considered have been:
  - ▶ Gas tax increases or indexing (24 states)
  - ▶ Sales taxes (14 states)
  - ▶ Creative fees and fares (13 states)
  - ▶ Mileage-based user fees (11 states)
  - ▶ Tolling (7 states)

# Where do we go from here?

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**Short term options (2014-2020) required to raise over \$1 billion annually**

<b>Mechanism</b>	<b>Revenue Potential</b>
<b>Remove the motor fuels tax cap</b>	<b>\$35 million</b>
<b>Discontinue General Fund transfers</b> from Highway Fund (no user impact)	<b>\$255 million</b>
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# Where do we go from here? (continued)

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- ▶ Lay the foundation for long-term solutions
  - ▶ Mileage-based user fees
    - Pilot program for cars & trucks
  - ▶ Congestion Pricing and Tolling
    - Remove NCTA limit
    - Set congestion threshold for managed lanes

# Questions?

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